

IN THE CLAIMS

Please amend the claims as indicated below by the markings. Claims 1-12, 20 and 27-32 are cancelled without prejudice.

1-12. (Cancelled)

13. (Currently Amended) A method for determining residence times of motile specimens ~~samples~~ on a force transducing sensor ~~motion-sensor~~ comprising the steps of:
introducing a multiplicity of motile specimens ~~samples~~ in a medium into a motion sensor system
comprising:
an enclosed chamber adapted to receive a multiplicity of motile specimens ~~samples~~;
at least one force transducing sensor positioned within the chamber so as to be immersed in
the medium during operation;
force transducing sensor surface coatings having characteristics appropriate for the motile
specimens; and
a motion detector for detecting motion of the force transducing sensor caused by the motion
of the motile specimens;
measuring the motion of the force transducing sensor caused by the motion of the specimens, said
measuring including the steps of:
directing a sensing beam through a transparent substrate toward said transducing sensor
using a beam generator mounted on said transparent substrate;
receiving a reflected beam through the transparent substrate from said transducing sensor
using a beam detector mounted on said transparent substrate; ~~samples; and whereby~~
calculating the residence times of the motile specimens ~~samples~~ on the force transducing sensor
surface coatings can be determined from the motion of the force transducing sensor.

14. (Currently Amended) The method ~~motion-sensing system~~ of claim 13 wherein the
motile specimens ~~samples~~ are part of a biological sample.

15. (Currently Amended) The method ~~motion-sensing system~~ of claim 13 wherein the
force transducing sensor surface coatings are biologically active surface coatings.

16. (Currently Amended) The method ~~motion-sensing system~~ of claim 13 wherein the
force transducing sensor is a MEMS device.

17. (Currently Amended) The method ~~motion-sensing-system~~ of claim 16 wherein the MEMS device is a cantilever.

18. (Currently Amended) The method ~~motion-sensing-system~~ of claim 17 wherein the MEMS device includes at least two cantilevers.

19. (Currently Amended) The method ~~motion-sensing-system~~ of claim 18 wherein one cantilever is a reference cantilever with a biologically inactive surface coating.

20. (Cancelled)

21. (Currently Amended) A method for determining characteristic motile frequency of motile specimens samples on a force transducing sensor ~~motion-sensor~~ comprising the steps of: introducing into an enclosed chamber adapted to receive for analysis a medium having therein a multiplicity of motile specimens samples moving within the medium with a motile frequency; disposing at least one force transducing sensor positioned within the chamber so as to be immersed in the medium during analysis and to interact dynamically with the motile specimens samples; sensing motion of said at least one force transducing sensor by directing a beam through a transparent substrate toward said at least one force transducing sensor using a beam generator mounted on said transparent substrate and detected a reflected beam through said transparent substrate from said at least one force transducing sensor using a detector mounted on said transparent substrate, said transparent substrate forming a wall of said chamber; and a motion detector for determining the characteristic motile frequency of the specimens samples by detecting the dynamic interaction of the force transducing sensor via changes in a signal detected by said detector.

22. (Currently Amended) The method ~~motion-sensing-system~~ of claim 21 wherein the motile specimens samples are biologically motile.

23. (Currently Amended) The method ~~motion-sensing-system~~ of claim 22 wherein the motile specimens samples are sperm.

24. (Currently Amended) The method ~~motion-sensing-system~~ of claim 21 wherein the force transducing sensor is a MEMS device.

25. (Currently Amended) The method ~~motion-sensing-system~~ of claim 24 wherein the MEMS device is a cantilever.

26. (Currently Amended) A method for determining characteristics of a motile specimen ~~sample~~ under analysis comprising the steps of:
positioning at least one force transducing sensor within a chamber adapted to receive the motile specimen under analysis;
directing motile specimens ~~samples~~ in a fluid toward the surface of the at least one force transducing sensor at an angle substantially orthogonal to the surface;
causing an interaction between the motile specimens ~~samples~~ and a coating on the surface capable of interacting with the motile specimens ~~samples~~;
allowing said motile specimens ~~samples~~ to interact with the force transducing sensor; and
detecting a measureable characteristic of the motile specimens ~~samples~~ in accordance with the interaction with the force transducing sensor using a beam directed through a transparent substrate toward said at least one force transducing sensor and a beam reflected by said at least one force transducing sensor through said transparent substrate, said transparent substrate forming a wall of said chamber.

27-32. (Cancelled)